



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/082,101

02/26/2002

Hajime Kimura

740756-2444

3503

22204

7590

01/03/2005

NIXON PEABODY, LLP

401 9TH STREET, NW

SUITE 900

WASHINGTON, DC 20004-2128

EXAMINER

PERUNGAVOOR, SATHYANARAYA V

ART UNIT

PAPER NUMBER

2625

DATE MAILED: 01/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/082,101

Applicant(s)

KIMURA, HAJIME

Examiner

Sath Perungavoor

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02/26/2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>02/26/2002</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Priority*

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 2001-057422, filed on 03/01/2001.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3, 5, 7, 9, 11 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Spivey et al. (US 5,886,353).

Regarding claim 1, Spivey et al. discloses a method of determining a defective pixel in a pixel portion, the pixel portion having a plurality of pixels each comprising a photoelectric conversion element, comprising the steps of (Fig. 1):

reading a first calibration sheet to obtain a first image signal of each of the plurality of pixels by using the photoelectric conversion element (Col. 15 Lines 23-25; Disclosed reference uses light and dark scenes to perform calibration.);

Art Unit: 2625

reading a second calibration sheet to obtain a second image signal of each of the plurality of pixels by using the photoelectric conversion element (Col. 15 Lines 23-25; Disclosed reference uses light and dark scenes to perform calibration.);

calculating a first difference between the first and second image signals of each of the plurality of pixels (Col. 15 Lines 27-29);

obtaining at least a value selected from a modal value, an average value and a maximum value of the first difference of each of the plurality of pixels (Col. 15 Lines 30-34; Variance disclosed would encompass average operation and maximum and minimum range operation. It is commonly known in methods such as standard deviation.); and

determining whether each of the plurality of pixels is a defective pixel by obtaining a second difference between the first difference of each of the plurality of pixels and the value of selected from a modal value, an average value and a maximum value of the first difference of the plurality of pixels (Col. 15 Lines 30-34).

Regarding claim 3, Spivey et al. discloses a method of determining a defective pixel according to claim 1, wherein the first calibration sheet is white and the second calibration sheet is black (Col. 15 Lines 23-25; Disclosed reference uses light (white) and dark (black) scenes to perform calibration.).

Regarding claim 5, Spivey et al. discloses the limitations as set forth in the discussion for claim 1. Spivey et al. also discloses obtaining the plurality of pixels, while

Art Unit: 2625

$T > \{C \times V_p / I_d\}$  is satisfied, where  $T$  is an accumulation time,  $C$  is a capacitance of the photoelectric conversion element,  $V_p$  is a voltage applied to the photoelectric conversion element (Fig. 5; It is commonly known claim limitation is the time constant  $\tau = R \times C$ . This concept is fundamental to electrical engineering and is applied to charging and discharging of capacitive elements. It would be inherent for  $T > \tau$ , since  $\tau$  represents the time required for complete charging.).

Regarding claim 7, Spivey et al. discloses the limitations as set forth in the discussion for claim 1. Spivey et al. also discloses obtaining the plurality of pixels, while an accumulation time of the photoelectric conversion element is 0 (Fig. 5; Accumulation time is commonly known and can be any amount greater than or equal to zero.).

Regarding claim 9, all limitations of this claim is set forth and rejected as per discussion in claims 5 and 7.

Regarding claim 11, all limitations of this claim is set forth and rejected as per discussion in claim 1.

Regarding claim 13, Spivey et al. discloses a device according to claim 11, wherein the device is at least a device selected from the group of a hand scanner, a video camera, a digital still camera, a notebook computer, a mobile computer, a cellular phone, a portable game machine and an electronic book (Fig. 1).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2, 4, 6, 8, 10, 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spivey et al. in view of Baxes (NPL document, see PTO-892).

Regarding claim 2, Spivey et al. discloses a method of determining a defective pixel in a pixel portion, the pixel portion having a plurality of pixels each comprising a photoelectric conversion element, comprising the steps of (Fig. 1):

reading a first calibration sheet to obtain a first image signal of each of the plurality of pixels by using the photoelectric conversion element (Col. 15 Lines 23-25; Disclosed reference uses light and dark scenes to perform calibration.);

reading a second calibration sheet to obtain a second image signal of each of the plurality of pixels by using the photoelectric conversion element (Col. 15 Lines 23-25; Disclosed reference uses light and dark scenes to perform calibration.);

obtaining at least a value selected from a modal value, an average value and a maximum value of plurality of pixels (Col. 15 Lines 30-34; Variance disclosed would encompass average operation and maximum and minimum range operation. It is commonly known in methods such as standard deviation.);

determining whether each of the plurality of pixels is a defective pixel by obtaining a ratio from the pixel value and the value selected from a modal value, an average value and a maximum value of the first ratio of the plurality of pixels (Col. 15 Lines 30-34; Variance disclosed would encompass determination by either difference or ratio, since percentage disclosed can be calculated through both methods.).

However, Spivey et al. does not disclose calculating a first ratio between the first and second image signals of each of the plurality of pixels.

Baxes does disclose calculating a ratio between the first and second image signals of each of the plurality of pixels (Page 82).

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teaching of Spivey et al. with Baxes to further meet the claim limitations. Since, image ratioing highlights certain features of an image, one would use the same idea to highlight pixel defects. Ratioing would create large variations in the pixel with defects and small variations in other areas. Furthermore, ratio is commonly known in calculations involving deviation and error detection. One would easily translate the well-known idea into defective pixel detection.

Regarding claim 4, Spivey et al. discloses method of determining a defective pixel according to claim 2, wherein the first calibration sheet is white and the second calibration sheet is black (Col. 15 Lines 23-25; Disclosed reference uses light (white) and dark (black) scenes to perform calibration.).

Regarding claim 6, Spivey et al. discloses the limitations as set forth in the discussion for claim 2. Spivey et al. also discloses obtaining the plurality of pixels, while  $T > \{C \times V_p / I_d\}$  is satisfied, where  $T$  is an accumulation time,  $C$  is a capacitance of the photoelectric conversion element,  $V_p$  is a voltage applied to the photoelectric conversion element (Fig. 5; It is commonly known claim limitation is the time constant  $\tau = R \times C$ . This concept is fundamental to electrical engineering and is applied to charging and discharging of capacitive elements. It would be inherent for  $T > \tau$ , since  $\tau$  represents the time required for complete charging.).

Regarding claim 8, Spivey et al. discloses the limitations as set forth in the discussion for claim 2. Spivey et al. also discloses obtaining the plurality of pixels, while an accumulation time of the photoelectric conversion element is 0 (Fig. 5; Accumulation time is commonly known and can be any amount greater than or equal to zero.).

Regarding claim 10, all limitations of this claim is set forth and rejected as per discussion in claims 6 and 8.

Regarding claim 12, all limitations of this claim is set forth and rejected as per discussion in claim 2.

Regarding claim 14, Spivey et al. discloses a device according to claim 12, wherein the device is at least a device selected from the group of a hand scanner, a



Art Unit: 2625

video camera, a digital still camera, a notebook computer, a mobile computer, a cellular phone, a portable game machine and an electronic book (Fig. 1).

#### ***Other Prior Art Cited***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kameyama et al. (US 5,416,516) discloses a defective pixel detection method.

Tanaka (US 5,594,248) discloses a defective pixel detection method.

Houchin et al. (US 5,047,861) discloses a defective pixel detection method.

#### ***Contact Information***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sath Perungavoor whose telephone number is (703) 306-4116. The examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta whose telephone number is (703) 308-5246, can be reached on Monday to Friday from 9:00am to 5:00pm. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Art Unit: 2625

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).



Sath Perungavoor  
Art Unit 2625  
December 22, 2004



KANJIBHAI PATEL  
PRIMARY EXAMINER